The

WORLD FOOD PRIZE

Celebrating 25 Years

PRESIDENT'S WELCOME

AMBASSADOR KENNETH QUINN
President
The World Food Prize Foundation

The 2011 World Food Prize celebration represented not only the culmination of the first quarter century of our foundation's operation, but also a fulfillment of the dreams that Dr. Norman Borlaug and John Ruan Sr. had when they established the World Food Prize in 1986 and then moved it to Iowa in 1990.

Our week-long series of events between October 8 and 15 reflected the significant changes that have occurred in our programs' size and stature. Only a decade ago, the World Food Prize was a one-day event drawing about 50 people from outside of Iowa. In 2011, over 1,400 attendees from 75 countries were in attendance.

Among the highlights of that week were:

- The grand opening of the $30 million Dr. Norman E. Borlaug Hall of Laureates, which will serve as the home of the World Food Prize for the next 100 years;
- The presentation of the $250,000 World Food Prize to former Presidents Luis Inácio Lula da Silva of Brazil and John Kufuor of Ghana at the magnificent Iowa State Capitol;
- The Borlaug Dialogue international symposium, which focused on the theme "The Next Generation" and which featured participation by five former presidents, eight ministers of agriculture and ten CEOs of international agribusiness firms, as well as research scientists, NGO leaders, farmers and international development experts;
- Our Global Youth Institute welcomed a record-breaking 280 participants from Iowa and 25 other states and territories, as well as four foreign countries.

In addition, we were thrilled to have:

- A performance by the world-acclaimed Tokyo String Quartet, thanks to the generosity of the Nippon Music Foundation;
- More than 500 persons attend our 5th Iowa Hunger Summit;
- The announcement of a $1 million grant by the Rockefeller Foundation to establish the new Dr. Norman E. Borlaug Award for Field Research and Application; and
- The 10th anniversary of our Laureate Lecture Series, with 20 presentations across Iowa.

These events all built upon other World Food Prize activities during the year, such as the:

- Historic visit of Chinese Vice President Xi Jinping to the Hall of Laureates, to participate in the U.S.-China High Level Agricultural Symposium;
- Laureate Announcement Ceremony at the U.S. State Department in Washington, D.C. in June, Secretary of State Hillary Clinton presiding;
- The largest ever contingent of Borlaug-Ruan International Interns, high school students sent on eight- week assignments at renowned agricultural research centers around the globe; and
- The first class of USDA Wallace-Carver Interns, a program which provides paid summer positions for college age "alumni" of World Food Prize youth education programs.

Adding to all of the above was the announcement of a significant personal gift by Paul and Claudia Schickler which permitted our foundation to hold a new Iowa Youth Institute, which is intended to draw students from every high school in the state for a day of special programs aimed at encouraging them to pursue college majors and careers in science and technology.

None of the above would be possible were it not for the continued support and endowment by the Ruan family, whose legacy is carried forward by our Chairman John Ruan III, as well as the more than 140 sponsors and donors who contributed to both our Hall of Laureates capital campaign and our annual operating fund. To all of you, we extend our heartfelt thanks.

Finally, great appreciation is owed to the World Food Prize staff, interns, volunteers and Laureate Society docents, whose incredible hard work, dedication and long hours make all of our events possible, and without whom none of the above achievements would have been possible.

Sincerely,

Ambassador Kenneth M. Quinn (ret.), President

THE WORLD FOOD PRIZE: CELEBRATING 25 YEARS

2011 BORLAUG DIALOGUE: THE NEXT GENERATION

GRAND OPENING

The Hall of ***Laureates***

The Norman E. Borlaug Hall of Laureates celebrates the life and legacy of one of Iowa's greatest heroes. The sensational grand opening of the Hall of Laureates in October, 2011 was a significant highlight of the 25th Anniversary of the World Food Prize which was founded by Dr. Borlaug.

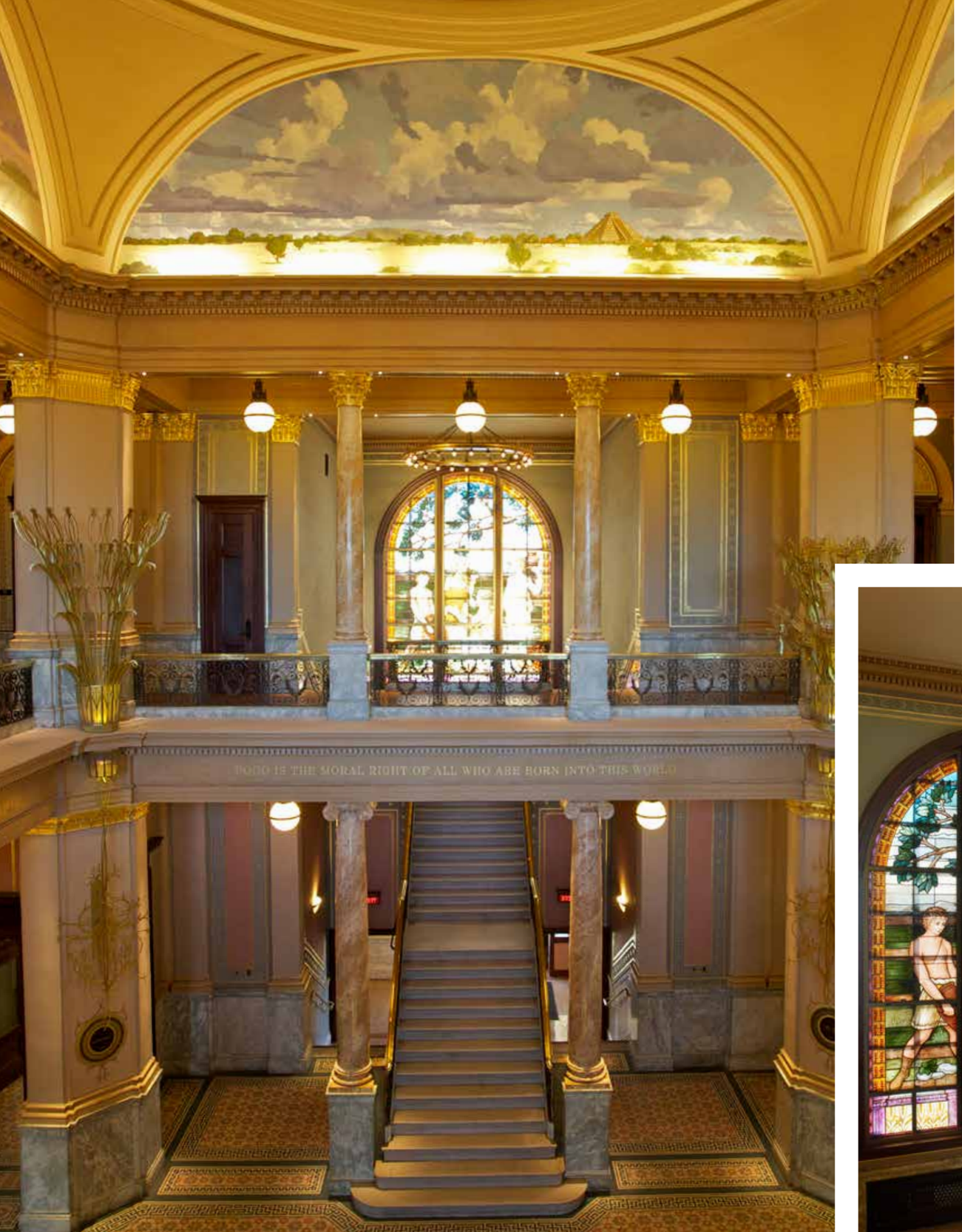
The Hall of Laureates project was officially inaugurated on October 18, 2001, when John Ruan III announced a gift of $5 million by his father John Ruan Sr. and the Ruan family to convert what was then still the Des Moines Public Library building into a home for the World Food Prize. John Ruan III took the stage at the Des Moines Civic Center in front of a crowd of 2,500 people with Dr. Borlaug at his side, and made the announcement of his family's gift in Dr. Borlaug's honor.

For the next 10 years, the World Food Prize Foundation, under the leadership of Ambassador Kenneth Quinn, carried out the campaign to raise more than $30 million to complete this project. With a dynamic team of architects, a comprehensive design was created to transform this 19th century library and cultural center into the global headquarters of the World Food Prize, giving this Iowa architectural treasure a new purpose in the 22nd century.

At the end of the 19th century, urban planning came into vogue and, with it, the "City Beautiful" movement which stressed the incorporation of the new civic buildings, parks and statuary to be placed in the heart of American cities. The Public Library was a central element of Des Moines' "City Beautiful" plan. Its cornerstone was laid in 1900 and it opened to the public in 1903.

In restoring the historic public library building into the new Hall of Laureates, the World Food Prize Foundation designed the art and décor to tell five main stories:

- That Dr. Norman E. Borlaug is the man who, through the Green Revolution he is credited with starting, saved a billion lives and of whom the Atlantic Monthly said, he saved more lives than any other person who has ever lived;



•That the World Food Prize was created to be the "The Nobel Prize for Food and Agriculture", and the World Food Prize Laureates are, in the last 50 years, the leaders of the single greatest period of food production and hunger reduction in all of human history;

•That led by John Ruan Sr., Iowa rescued the World Food Prize in 1990 and moved it to Des Moines with the goal of making Iowa "The Hunger Fighting Capital of the World;"

•That Iowa has an amazing agricultural and humanitarian heritage; and

•That women have played a significant role in the history of agriculture and food production.

Left: Hall of Laureates Rotunda; Below: Stained glass window depicting a family in classical times bringing in the harvest; Right: The garden fountain provides a dramatic view of the building.

More than 10 percent of the restoration funding was devoted to commissioning exhibits and art that would emphasize these stories, with each room being allocated to a particular theme.

The World Food Prize and its design architects had an adventurous attitude toward art; many different types of art are found in the building. Several pieces were even created using new computer technologies, bridging the art of the past with the art of the future.

The Hall of Laureates simultaneously looks to the future while paying tribute to the past, in its goal to obtain LEED (Leadership in Energy and Environmental Design) Platinum certification. As such, it would be the only 19th century building in the state of Iowa, and one of only a handful in the country, ever to acquire this highest level of energy efficiency.

The magnificent Norman E. Borlaug Hall of Laureates serves as a museum to recognize great achievements in agriculture; a home for the expanded Global Youth Institute; an educational facility featuring interactive displays on hunger and food security; and a conference center available to the community.

> *This historic edifice, designed in the 19th century, which served as a library and cultural center throughout the 20th century, is now being re-dedicated to a new purpose at the beginning of the 21st century, so it will still be inspiring efforts to confront and eradicate hunger at the beginning of the 22nd century – or, maybe, just maybe, celebrating our victory in vanquishing hunger from the face of the earth."*
>
> *-Ambassador Kenneth M. Quinn*

2011 LAUREATE AWARD CEREMONY:

John Agyekum ***Kufuor*** *&* *Luiz Inácio* ***Lula da Silva***

THE 2011 WORLD FOOD PRIZE was awarded to H.E. John Kufuor, former President of Ghana, and H.E. Luis Inàcio Lula da Silva, former President of Brazil, during a ceremony at the magnificent Iowa State Capitol on October 13, 2011.

Over 800 dignitaries and experts from more than 75 countries attended. The ceremony was held as part of the World Food Prize 2011 Borlaug Dialogue, themed "The Next Generation: Confronting the Hunger Challenges of Tomorrow."

2011 LAUREATE
John Agyekum **Kufuor**

John Agyekum Kufuor served as President of the Republic of Ghana from 2001 – 2009. Everyone who knew John Kufour in his early years would have predicted him as a future president of Ghana.

Kufuor was born in 1938 in Kumasi, Ghana. Both sides of Kufour's parentage come from distinguished families whose members include chiefs, farmers, timber merchants, lawyers, professors, engineers, and politicians. Kufour graduated at the top of his class in secondary school, was called to the bar at the age of 22 and then entered Oxford University where he studied economics, philosophy and politics. He completed his formal education with a Master's degree from Oxford.

Kufour's public service began in 1967 when he was appointed chief legal officer and town clerk of Kumasi, the second largest city of Ghana. In the intervening years between being the town clerk and becoming president, Kufour was appointed and elected to a wide variety of positions in the Ghana government including serving as a member of the Constituent Assembly and as Deputy Minister of Foreign Affairs leading Ghana's delegation to the United Nations General Assembly in New York and representing Ghana in Addis Ababa, Zambia, Moscow and many European capitals.

In 1998, John Kufour was nominated by the New Patriotic Party to assume the position of Leader of the Party and run for election as president. Kufuor came into the presidential arena with relevant and unmatched credentials along with being sensitive, caring, and respectful of all people.

In the 1990s, 51.7 percent of people in Ghana were living in poverty and 34 percent of the population experienced food insecurity. When President Kufuor took office in 2000, a guiding principle of his administration was to improve food security and reduce poverty through public and private sector initiatives.

"Food is the most basic of needs, it decides not just the health of an individual but also the health of a community."

President Kufuor implemented major economic and educational policies that increased the quality and quantity of food to Ghanaians, enhanced famers' incomes, and improved school attendance and child nutrition through a nationwide feeding program.

The Ghana School Feeding Program launched by President Kufuor provided one nutritious, locally produced meal a day for school children from kindergarten to junior high school. By ensuring nutritious food at school, this program dramatically reduced the level of chronic hunger and malnutrition while improving attendance. By the end of 2010, approximately one million primary school children were participating and benefitting from this program.

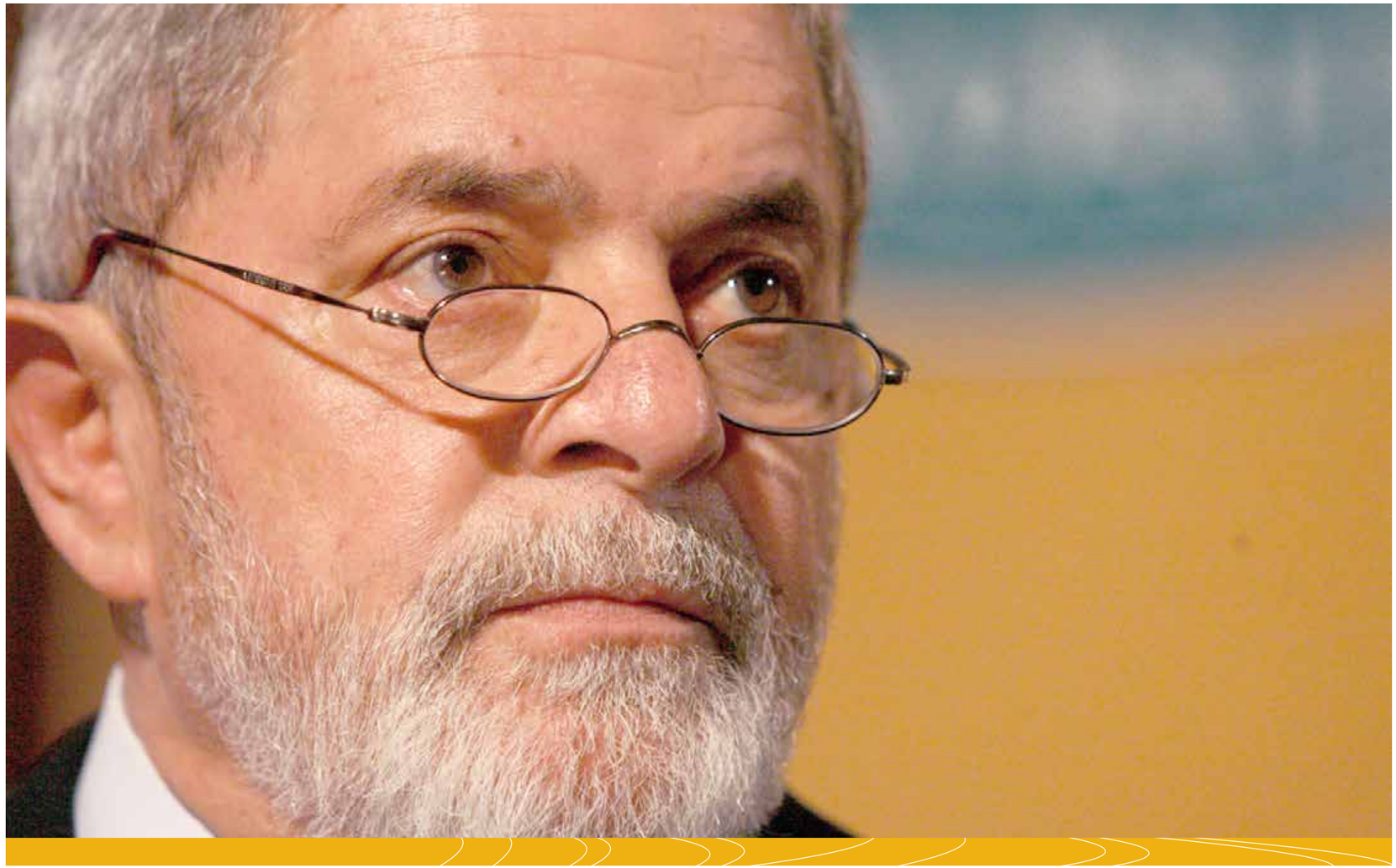
Under President Kufuor's leadership, Ghana became the first sub-Saharan African country to cut in half the number of people who suffer from hunger. The positive changes achieved during President Kufuor's tenure reflect his transformational leadership and personal commitment to the sustained growth in the agricultural sector.

By the end of President Kufuor's eight years in office, Ghana saw a dramatic reduction in hunger down to 9 percent in 2004, and its poverty rate was reduced to 26.5 percent in 2008.

For formulating and implementing policies driving overall economic growth and working to reduce the number of Ghanaians afflicted by poverty, hunger and malnutrition, John Agyekum Kufuor was selected as a 2011 World Food Prize Laureate.

President Kufuor's administration helped to initiate or continue improvements in farming, nutrition, education, healthcare and infrastructure, leading to significant positive changes in Ghana during the first decade of the new millennium.

-International Food Policy Research Institute



President Luiz Inácio Lula da Silva made it clear, even before he took office, that fighting hunger and poverty would be a top priority of his government.

2011 LAUREATE

Luiz Inácio **Lula da Silva**

Luis Inácio Lula da Silva was born in 1945 into a poor working class family in the northeastern state of Pernambuco, Brazil, in the town of Garabhuns. In search of a better life, his family moved to a neighborhood in the coastal town of Guaruja in 1952, where the 7-year old Luiz contributed to the family income by shining shoes and selling peanuts. In 1956, Luiz, the seventh of eight children, went with his mother to live in the city of Sao Paulo. With the frequent moves and poverty he experienced as a child, his education was spotty.

Luiz – who later added the nickname "Lula" into his given name – found employment in his teens in various factories, eventually enrolling in a 3-year government metalworking course that qualified him for the skilled jobs of mechanic and lathe operator. Introduced into the labor movement in 1969, which was embroiled in the general political strife, Lula da Silva at first expressed no political aspirations. But in 1972 Lula da Silva was elected secretary of the Metalworkers Union of Sao Bernardo do Campo and Diadema and three years later he became its president and the voice for 100,000 workers.

Lula da Silva made an unsuccessful run for the governorship of Sao Paulo in 1982 but his Workers' Party won seats in Brazil's congress and in 1986, he won election to congress with the largest vote total in Brazil and emerged as a figure of national significance. Lula da Silva was successful, on his fourth attempt, in his bid for the presidency in 2002 winning by a substantial margin, and was re-elected in 2006 for a second term.

President Luiz Inácio Lula da Silva made it clear even before he took office that fighting hunger and poverty would be a top priority of his government. He called upon all elements of Brazilain society to embrace his goal to ensure three meals a day for all citizens, to alleviate poverty, to enhance educational opportunities for children, and to provide greater inclusion of the poor in society.

During President Lula da Silva's tenure, the first UN Millennium Development Goal was exceeded before the 2015 deadline, as Brazil reduced by half its proportion of hungry people (with 93 percent of children and 82 percent of adults eating three meals a day) and also the percentage of Brazilians living in extreme poverty was reduced from 12 percent in 2003 to 4.8 percent in 2009.

The expansive Zero Hunger programs, initiated by President Lula da Silva, very quickly became one of the more successful food and nutritional security policies in the world through its broad network of programs, including: the Bolsa Familia Program; the Food Purchase Program; and the School Feeding Program.

By 2009, through the Bolsa Familia Program, nearly a quarter of Brazil's population were guaranteed a minimum income and allowed access to basic goods and services. The Food Purchase Program distributed food to poor families through public schools, community restaurants, assisted living facilities and day care centers. And the School Feeding Program reduced child malnutrition by 61.9 percent between 2003 and 2009 and all age groups experienced improved access to quality food.

President Lula da Silva has been honored with numerous awards but none more prestigious than the twenty-fifth Anniversary World Food Prize recognizing his commitment, vision and achievements in greatly enhancing the lives of Brazil's people.

The country's Zero Hunger network of programs represents one of the world's leading efforts to decrease hunger and improve nutrition, providing greater access to food and education, increasing rural incomes, and empowering the poor. Under his leadership, Brazil cut hunger in half, exceeding the first Millennium Development Goal.

-Ambassador Kenneth M. Quin
President, World Food Prize Foundation

SECRETARY OF STATE HILLARY CLINTON
Awarded Borlaug Medallion

On June 12, 2012 at the State Department, Ambassador Ken Quinn presented the Borlaug Medalion to Secretary of State Hilary Clinton. In doing so he said...

"Madam Secretary, I want to be sure that you know what your personal leadership meant to Dr. Borlaug.

I still vividly recall being here on June 12, 2009, for the first World Food Prize Laureate Announcement Ceremony at which you presided. Dr. Borlaug was supposed to be here that day. But his health prevented him from making the trip. Even though he was in the last few months of his life, Dr. Borlaug was still intensely focused on taking the Green Revolution to Africa. He had become fearful that there would not be the energy and direction needed to accomplish this goal after he departed from the scene. So I phoned him right after the ceremony that day to tell him about what had transpired, and that you had taken that opportunity to articulate the principles upon which the Feed the Future initiative would be developed.

Madam Secretary, your words and the leadership you provided that day gave Dr. Borlaug great hope. Great hope that the goal that he had dreamed of – the African Green Revolution – might yet be accomplished. When he passed away exactly three months later on September 12, 2009, Dr. Borlaug's last words were "Take it to the farmer." Since then, Madam Secretary, you have put global food security front and center on the foreign policy agenda – a remarkable transformational accomplishment for which you deserve enormous credit. As we all saw at the recent G-8 summit, you and Secretary Vilsack, Administrator Shah and the Obama Administration with bipartisan support are indeed working with African leaders and the international community to fulfill Dr. Borlaug's last wish.

It is for that reason that I am so pleased to be able to present to you this special commemorative version of Dr. Borlaug's Congressional Gold Medal, America's highest civilian honor, which he received in 2007 and which bears his likeness. I hope that it will forever be a reminder of the enormous respect and gratitude that Dr. Borlaug had for the leadership which you have provided, and continue to provide, on the issue of confronting global hunger and alleviating human suffering."

CHINESE VICE PRESIDENT XI JINPING
World Food Prize Hosts U.S. - China Agricultural Symposium

The World Food Prize Hall of Laureates was the setting for a historic visit by the future leader of China and the inaugural High Level U.S.-China Agricultural Symposium. In February 2012 World Food Prize President, Ambassador Kenneth Quinn, was honored to host the U.S.-China Agricultural Symposium which featured participation by Chinese Vice President Xi Jinping. The Chinese Vice President, who was accompanied by China's foreign minister Yang Jiechi, was in Iowa at the invitation of Governor Terry Branstad. Another high point of the day was Secretary of Agriculture Tom Vilsack and Chinese Minister of Agriculture Han Changfu signing the most significant ever bilateral agreement between the two countries for the promotion of agricultural trade. The U.S. Ambassador to China, Gary Locke, also took part in the event which drew over 200 U.S. and Chinese senior business leaders. The Hall of Laureates was also the setting during the signing of $4.3 billion in contracts for Iowa soybean sales to China.

2012 Hoover-Wallace Recipients

2012 Hoover-Wallace Dinner

The Hoover-Wallace Dinner was established by the World Food Prize Foundation in 2004. It was created to be an occasion each year for Republicans and Democrats to come together above partisan division to recognize Iowa's humanitarian heritage and to support unique educational opportunities for Iowa high school students.

The dinner recalls the great humanitarian achievements of Republican Herbert Hoover, who while working for Democratic President Woodrow Wilson during World War I, shipped food to Europe that fed and saved close to one billion people, and the agricultural innovations of Democrat Henry A. Wallace, whose leadership in spreading American agricultural technology to less fortunate countries helped to feed hundreds of millions.

In August of this year, Iowa Governor Terry Branstad and U.S. Secretary of Agriculture Tom Vilsack were honored at the Hoover-Wallace Dinner at the World Food Prize Hall of Laureates. The event recognized the historic achievements of Governor Branstad and Secretary Vilsack in bringing Chinese Vice President Xi Jinping and the U.S.-China Agricultural Symposium to Iowa, and for their exceptional roles in promoting agriculture and agribusiness. These two leaders are also being honored for their dedication to youth education programs, including the World Food Prize Global Youth Institute.

All of the proceeds from the Hoover-Wallace Dinner go to support the Borlaug-Ruan International Internship program, which plays a critical role in inspiring the next generation of young Iowans to pursue education and careers in agriculture and food science. Each year, this World Food Prize internship program sends over 20 high school students on all-expenses-paid, eight-week international internships at research centers in Africa, Asia, Latin America and the Middle East where they gain firsthand experience in the field and lab, become familiar with other cultures and learn from renowned experts and mentors. Since 1998, over 140 Iowa high school students have participated.

"We are honored to recognize these two public figures, both of whom have served our state proudly and offered their exceptional leadership to enhance our communities," said Amb. Kenneth M. Quinn, president of the World Food Prize Foundation. "By promoting agribusiness and ties with China, they help make our state stronger and put Iowa on the map as a breadbasket of the world."

At the 2012 dinner,held in conjunction with the Greater Des Moines Partnership, renowned Iowa opera singer Simon Estes sang one of Dr. Norman Borlaug's favorite songs – the Iowa Corn Song.

The First Hoover-Wallace Dinner was held in Cedar Rapids in April 2004. The theme for that evening was celebrating Dr. Borlaug's 90th birthday. The 2005 dinner in Des Moines recognized former Vice President Walter Mondale and former Iowa Governor Robert Ray for their role in saving hundreds of thousands of refugees from Southeast Asia. The 2006 dinner, held in Cedar Falls, honored the role of John Deere, both the man and the company, in feeding the world. The legendary career of George Washington Carver, who found acceptance and the opportunity to flourish in Iowa, was the focus of the 2007 dinner in West Des Moines, and in 2008, three true champions of humanitarian and public service - former Senator John Culver, former Congressman Jim Leach and Iowa City physician Dr. Ignacio Ponseti - were feted in Coralville. In 2009, Senators Chuck Grassley and Tom Harkin were honored for their service to Iowa, the United States, and the world and for their bipartisan work on various projects.

INSPIRED BY THE IMPORTANCE THAT NOBEL LAUREATE and World Food Prize founder Dr. Norman Borlaug placed on educating and developing the next generation of leaders in the fight against hunger, the 2011 Borlaug Dialogue international symposium gathered the top minds and foremost leaders in global agriculture, food and development last October in Des Moines. As the World Food Prize celebrated its 25th Anniversary of bringing hunger issues to the forefront, we looked ahead even further to discuss tomorrow's issues and challenges.

In 2011, we were honored to welcome over 1,400 people from more than 75 countries to our Borlaug Dialogue and Global Youth Institute, including five former presidents, the current prime minister of Tanzania, seven ministers of agriculture and 10 CEOs of major international food and agribusiness companies. Our week-long events culminated in the awarding of the 2011 World Food Prize to our two Laureates – former Presidents John Agyekum Kufuor and Luiz Inácio Lula da Silva – for their extraordinary achievement in leading Ghana and Brazil to meet the Millennium Development Goal of cutting in half poverty and hunger in their respective countries.

-Ambassador Kenneth M. Quinn

2011 BORLAUG DIALOGUE • OCTOBER 12 - 14 • DES MOINES, IA

THE NEXT GENERATION

OPENING KEYNOTE

HOWARD BUFFETT
President, Howard G. Buffett Foundation

Because in the end we all share this planet together, and we must feed the world.

I don't think that advance Western technology is a universal solution, nor do I think it's appropriate in all situations.

This is where sometimes I part company with some of the bureaucrats, politicians, academics, companies, other foundations that advocate high-tech, high-yield approaches as the ultimate solution to agricultural development, particularly in least-developed countries.

Seed is only one part of the system. I'll tell you that soil is more important. Simply distributing seeds without a sustainable soil fertility plan will eventually be a disaster. Additionally, you cannot correct low soil fertility by piling on chemically based fertilizers.

There are over 500 million small-scale farmers in Africa who do not know how to apply fertilizers properly. Oftentimes, they cannot access or afford them.

I believe in improved seeds but they require the proper training, and their use must be appropriate for the circumstances. If initial yields are favorable, and they often are, farmers may convert additional land into a single crop. And when they do that, they actually put their family at greater risk because they sacrifice crop diversity for more of a monoculture environment. That crop diversity is critical to the survival of many of those farm families. It's an issue that we have to be very cognizant of as we look at places like Sub-Saharan Africa.

Although fertilizer will often provide initial and sometimes significant increase in yields, synthetic fertilizer by itself isn't going to fix long-term soil fertility problems. You can't just throw it on the ground and expect a miracle. I can guarantee you that none of the poorest farmers have ever had soil tests.

"We don't need a unique green revolution – we need new thinking. We need to be smarter. We need to be willing to think outside the little box that we've created for ourselves. Otherwise, the problems become systemic."
-Howard Buffett

We continue to hear that technology is the solution and that it's the closest thing you can come to a silver bullet. It's a very important contributor but if viewed as a single solution, we're never going to succeed.

I believe that improved seeds and fertilizer must be part of any successful farming system, but they are only components of it. Without a biologically based, sustainable soil fertility management plan combined with education and training and, most important, a serious long-term commitment from government, seeds and fertilizer alone will not succeed.

An example I want to give you is one that tells you that, rather than asking if technology can provide immediate production increases, it's more important to ask if those increases are environmentally and financially sustainable.

And if you think about the expense of this technology and what people can afford and what they have access to, none of this exists at a large scale in the majority of countries in Africa – that's the challenge. A really important point when considering what technology is appropriate is the cost benefit ratio and a clear understanding of what those benefits provide. For example, a GPS system alone is twice the lifetime earnings of a farmer in Liberia. Different farmers need different solutions.

The Inter-Academy Council Report actually states that a green revolution is not the answer for African agriculture, but yet people are still calling for one. They qualify this by saying that we need a uniquely green revolution. But I'm going to tell you that a green revolution is what it was. We all know what it was. Everybody in this room could probably define it in terms of irrigation, high-tech, improved seeds, infrastructure, particularly government commitment.

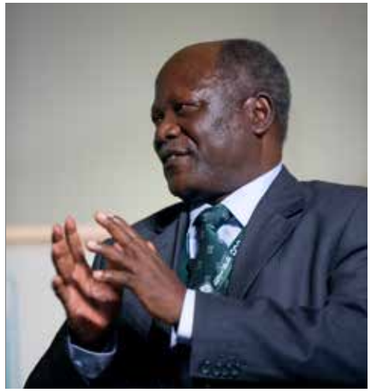
We don't need a unique green revolution – we need new thinking. We need to be smarter. We need to be willing to think outside the little box that we've created for ourselves. Otherwise, the problems become systemic.

JAMES BOREL
Executive Vice President, Dupont

PATRICIA WOERTZ
Chairwoman, CEO and President, Archer Daniels Midland Company

SAMUEL ALLEN
Chairman and CEO, Deere & Co.

HUGH GRANT
President and CEO, Monsanto Company



NAMANGA NGONGI
President, Alliance for a Green Revolution in Africa (AGRA)

RICHARD LEACH
President and CEO, World Food Program USA (Moderator)

GLOBAL HARVEST INITIATIVE CEO ROUNDTABLE:
THE ROLE OF THE PRIVATE SECTOR IN SUSTAINABLE AGRICULTURE

JAMES BOREL

"Science-based regulation is incredibly important. It can actually provide security or comfort to a society, at the same time provide a more consistent and predictable path for industry. So if you know what the rules are, and they're based on sound science, then you can accelerate development. So that's one key area – to try to get science to the market faster but yet in an orderly way. And another is around innovation.

What do countries do about their investment in agricultural research or in the agricultural infrastructure? What kind of intellectual property rights do they have? What's the sum total of their policies that will encourage innovators both locally and globally to invest and to participate and to accelerate progress. So if I had two themes, it would be those two that everybody should think about."

PATRICIA WOERTZ

"When you think of infrastructure, you don't always think about cell phones, but that is one avenue that can add to the education process that can occur for the smallholder, that can occur in the communication from the farmer to the market to the next level of the chain… It's not that we need to create new technology – it will continually evolve – but I think we need to work together to help each other's success, and that is the success of countries, of companies, of the people that need the food most. And I'm confident that will happen."

SAMUEL ALLEN

"Today, 17 percent of the arable land that's under cultivation is irrigated, and it produces approximately 40 percent of the crop output. But agriculture is already using 67 percent of the world's fresh water. That's not sustainable. And if we're going to double food up, it's certainly not sustainable. But you're not going to be able to say – quit irrigating. That's the only way you're going to continue to increase it.

So around the globe, developing policies that help incent the efficient use of water is going to be extremely important, especially when you think that the two areas of greatest population growth are the two areas that are going to be very water-challenged, and that is throughout Asia and throughout Africa."

HUGH GRANT

"Agriculture should be a young person's game, and if this is a generational challenge, where are the future aggies coming from, and how do we make agriculture sexy again? Because the challenge in many parts of the world from a policy point of view is – people run from the farm to the city, and the last thing they want to do is stay on the farm or stay in agriculture. And I think that would be another policy piece. If you were king for a day, how do you look on a generational basis at ag education and for those future scientists and those future breeders coming through in the next ten to twenty years?"

NAMANGA NGONGI

"I would say that if you take the African situation, it's good to invest in more research, more science. But if existing science got into the hands of the majority of Africa's farmers today, you woulD more than double the production. So there's a real challenge for information, for farmers to know what the possibilities are that they can use to be able to improve their production levels.

Secondly, there is nothing more inciting to adopt technology than to have the prospect of making an income from using that technology. Markets have to be better organized so whatever impediments there are in countries have to be removed so that people can access the best possible markets they can within their countries and within their regions. If that can be done, I think that will be a major way to move forward."

RICHARD LEACH

"This is truly an unprecedented moment I think that we're all in, where there is now, across all sectors, a commitment to increasing agricultural production as a tool not only to bolster economies, as a tool not only to ensure global stability, but really as a tool to deal with and address an extreme point of view and hunger."

ELLEN KULLMAN Chairman and CEO, DuPont

SYMPOSIUM LUNCHEON KEYNOTE:

At DuPont we are under no illusion that laboratory science can drive food security on its own. Science is universal, but solutions are local. Although science can provide universal answers, solutions must always be local, because of the variations in climate, in soil, in culture, in traditions, in economic and market realities and in transportation and infrastructure. I commend organizations, such as the World Food Prize and 4-H, that are doing so much to develop the next generation of leaders and professionals who will be pivotal in the drive for food security.

We need to continue to promote science and agriculture among youth and support them in applying their skills to this industry – and it's great seeing the kids here today with their teachers, as a further demonstration of the importance of that.

Earlier this week, my DuPont colleague, Jim Borel, shared an announcement about our partnership with 4-H. Our goal is to build capacity in five African countries, to equip the next generation of African smallholder farmers with skills so they can move toward self-sustaining status, they can contribute to food security and most importantly they can thrive economically.

We'll invest $2 million over the next two years to establish a comprehensive professional development institute for 4-H African leadership and to expand an Enterprise Garden Initiative. We'll focus first on Kenya, Tanzania, Ghana, Ethiopia and South Africa.

In addressing global issues, we have to come to a point where the most effective solutions will require global collaborations. The success of global collaborations is based on the success of local dialogues, local partnerships and local stakeholder interactions. We call it "the global collaboratory" - a laboratory without walls that spans the globe.

The work of the global collaboratory we call "inclusive innovation." That means working closely with our customers so that the innovation we create will be directly connected to the local market, directly connected to the local needs and help our customers succeed in their communities. We genuinely believe that together we can accomplish what no one can accomplish alone.

STEEN RIISGAARD President and CEO, Novozymes

KEYNOTE:

The Phosphate Challenge

One of the greatest threats for future agriculture could be phosphate shortage. Without phosphate, yields decimate fast. It will not matter how sophisticated of crops we have engineered or how well we manage crop epidemics. As Dr. Borlaug stated in a response to the challenge of feeding the global population of six billion people, without chemical fertilizers, forget it – the game is over. Collectively, globally we need to provide incentives for farmers to use technologies like phytates and inoculants.

We need to support research and development on how to transform the manure from a waste stream into a value stream, solubilizing the phosphate or plant uptake in a form that can be globally distributed to where it's needed. Most importantly, we all must work to make sure the warning signs aren't ignored. When we think about yield and climate change and global markets, we must include phosphate in those discussions.

JOSETTE SHEERAN Executive Director, UN World Food Programme

KEYNOTE:

Ending Hunger and Malnutrition

One of the paradigm shifts I think has been talked about here - I call radical collaboration. No nation, no individual, no private sector company, no UN agency, no NGO, no leader how powerful, can change the face of hunger on earth. It requires radical collaboration and working across different tribes.

I remember the first meeting at the World Bank, and mark history there because it was the first time nutritionists came together with agriculturists, together with "finance ministers" after The Lancet series. And it was literally like tribes with different languages. They didn't trust each other. They didn't really like each other very much. They didn't use the same language, the same terminology. And we had to figure out how to work together. And I think this is the world that we're in now. And thank you to the World Food Prize for being ahead of the curve on that one.

Let us put the challenge on the world to say – We're not going to reduce malnutrition, but we're going to end the scourge of a quarter billion children on earth having stunted brains and bodies simply because they can't get access to what is now readily available.

HRH PRINCESS HAYA BINT AL HUSSEIN United Nations, Messenger of Peace

SPECIAL VIDEO ADDRESS:

HRH Princess Haya Bint Al Hussein on behalf of UN Secretary - General Ban Ki-moon

Financial crises and political conflict consume so much of the attention of the world leaders today. They have distracted us from addressing an alarming surge in hunger and malnutrition in the last few years and historically high food prices that now plague poor families all over the globe. Nearly one billion people still do not have enough to eat, and sadly it is women and children who suffer most. We pay a high price for our negligence. Malnutrition inevitably leads to disease and lost economic productivity. Ultimately, we all pay for every hungry child who fails to grow to meet his or her full potential.

Some despair at the lack of progress in helping world hunger and poverty, as all our nations pledged to do in the Millennium Development Goals we adopted in 2000. But that despair is not well-founded when we see leaders like President Kufuor and President Lula da Silva who help Ghana and Brazil not only meet those goals but surpass them.

On behalf of the United Nations, I express my appreciation to them both for their remarkable achievements. But this cannot compare to the appreciation of the millions of hungry people whose lives they have transformed.

MICHAEL MACK CEO and Executive Director, Syngenta

SYMPOSIUM BREAKFAST KEYNOTE:

If people can't count on having enough food on the table, if the price of food suddenly becomes beyond their reach - history - indeed our very recent history, suggests that the results will lead to unrest.

Now, we're all familiar with the events of the Arab Spring, which continue to unfold right now. There were many grievances fueling the protests, including of course longstanding political oppression. But we shouldn't forget that these disruptions were also in part catalyzed by rising food prices.

In Tunisia, President Ben Ali's promise to lower the staple price of food wasn't enough to keep him from being thrown out of power. And in Egypt, of course, bread riots were part of what sparked the riots in that country.

In Nigeria, violence began shortly after prices for food spiked in early January. And as crowds broke into flour warehouses and set governments buildings afire, there were reported cries of, "Bring us sugar."

Will living on the edge become the new norm?

As the world appetite grows larger, it just can't be argued that stagnant agricultural productivity is an acceptable option. And the halls here at the World Food Prize have spoken to this plainly over these past 25 years.

Now, there's probably not a single person in the room here this morning who hasn't heard the word "smallholder" multiple times over the past three days. And that's because the fate of the smallholder could effectively determine the world's long-term food security.

At 450 million small farms, typically supporting five members per household, one third of this world's population directly depends on these small farms for part of their livelihood. We know that success will hinge on whether they can become sustainable enterprises.

And the key word is here "enterprise" – the sustainability of the farm as a firm, because when these firms can earn enough to sustain not only their farms but also enough to invest in the education of their children, they will be able to contribute to the general uplift of their nations.

As we've been discussing at this conference, such efforts require the cooperation of many, including governments, NGOs and academia. But business can bring something to the table too. We have knowledge in critical areas like finance, risk and supply chain management, and the adaptation of technologies to local markets.

My company has been working on a broad range of stakeholders to apply some of this business expertise in as direct and as targeted a way as possible to smallholder farming.

I thought it would be worth it to share a few examples.

First, *integration of technology in learning*. We help the farmers grow higher-quality coffee beans and most of this through agronomic advice on products but also such things as geo-mapping of each of the plots of their farm so that farmers can then pinpoint what works and then put that over the rest of their farms.

Second, *information and education.* Workshops provide farmers with information on what roasters desire in the coffee that they buy.

Third, *financial instruments that provide capital and help farmers manage risk*. In our case, the farmer can pay Syngenta in a kind of barter arrangement where the farmer records a premium based on the quality of the coffee she delivers.

Finally, *access to markets*.

So what's standing in our way? Ultimately, I believe it will come down to leadership - the kind of leadership, ladies and gentlemen, exemplified by this year's award winners.

WORLD FOOD PRIZE CONCERT:
Toyko String Quartet

With the generous support of the Nippon Foundation, the World Food Prize was thrilled to have world acclaimed Tokyo String Quartet perform at the 25th Anniversary Laureate Award Ceremony at the Iowa State capital before an audience of over 800 people from 75 countries.

In addition, the World Food Prize was pleased to be able to host a free public concert attended by more than 500 music lovers from the Greater Des Moines community. Considered the finest example of this musical genre anywhere around the globe, the Tokyo String Quartet performed an hour and a half concert at the Temple for the Performing Arts in the heart of Des Moines using their original Stradivarius instruments.

In collaboration with the Des Moines Symphony Orchestra, members of the Tokyo string Quartet also taught classes to young aspiring musicians during their time in Des Moines.

World Food Prize president Ambassador Kenneth Quinn told the audience that this exceptional musical performance was a gift from the World Food Prize to the community as part of its 25th anniversary celebration.

AMBASSADOR KENNETH M. QUINN:
Champions of Change

On Thursday, September 6 2012, the White House honored World Food Prize president Ambassador Kenneth M. Quinn as one of 11 individuals selected nationwide as a Champion of Change. Ambassador Quinn was chosen as a person who has "committed himself to strengthening food security in the United States and around the world."

Ambassador Quinn was accompanied by his wife Le Son to the event at the White House at which the Champions of Change were recognized and all participated in a symposium on issues involved in confronting hunger at home and abroad. During his remarks, Ambassador Quinn said that he was honored to be carrying on the legacy of the "single greatest champion of change of all time - Nobel Peace Prize laureate and World Food Prize founder, the late Dr. Norman E. Borlaug."

The Ambassador continued by saying that "through the work of the World Food Prize laureates, our annual Iowa Hunger Summit, the Borlaug Dialogue symposium and the Global Youth Institute that Dr. Borlaug created, we are carrying on his endeavor to reduce and, one day, hopefully eliminate the scourge of hunger from the face of the Earth."

JOIN THE FIGHT AGAINST HUNGER

The Iowa ***Hunger Summit***

The year 2011 marked the 5th Annual Iowa Hunger Summit. The World Food Prize Foundation, with support of Governors Robert Ray, Terry Branstad, Tom Vilsack and Chet Culver, established the Iowa Hunger Summit as a means to celebrate Iowa's great successes in fighting hunger and poverty and to unite Iowans in further action against both.

The Iowa Hunger Summit annually gathers over 500 leaders from across Iowa representing community organizations, business and industry, state and local government, social agencies, churches and religious communities, schools and universities and other individuals and groups that lead or participate in projects to confront hunger.

Attendees come together to celebrate the many outstanding efforts of Iowans toward ensuring adequate food for all, to encourage and expand these efforts and to increase statewide awareness of hunger, poverty and related issues.

The 2011 Iowa Hunger Summit placed a special emphasis on nutrition and health.

The day began with a presentation on addressing the dualities of hunger and obesity, organized by 30 Project and the Global Food Banking Network. This was followed by a presentation on the challenges of global aging and nutrition, organized by the Heartland Global Health Consortium; a presentation on the intersections of food assistance and local food systems in Iowa, organized by the Iowa Food Access and Health Working Group; and a session on social innovation, organized by Hormel Foods.

"October 16 is United Nations World Food Day. Here in Iowa, it is also, by act of Legislature, Dr. Norman E. Borlaug World Food Prize Day."

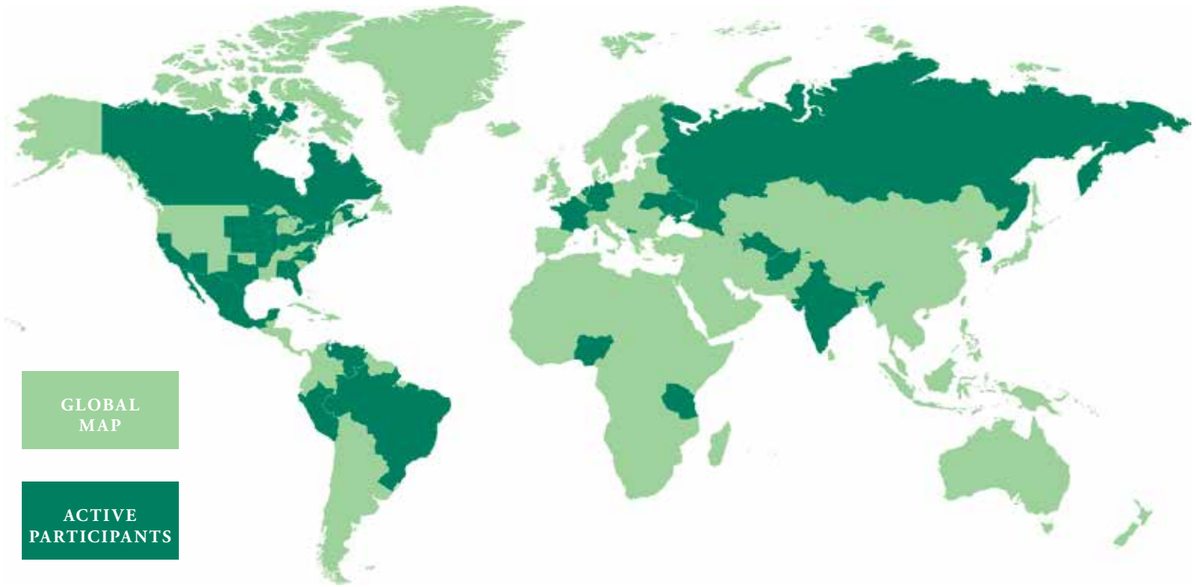
-Iowa Governor Terry Branstad

The 2011 Iowa Hunger Luncheon featured a keynote address by Tom Arnold, President and CEO of Concern Worldwide, and meals used by Iowa-based organizations in food assistance and hunger-relief efforts. Mr. Arnold's keynote address focused on famine in Somalia and East Africa. At the luncheon, it was announced that in 2011 Iowans privately raised over $12,097,790, distributed more than 12.8 million pounds of food and donated at least 520,000 volunteer hours toward ending hunger in our state and abroad.

Following the Iowa Hunger Luncheon, Iowa Hunger Summit attendees participated in interactive workshops on specific issues of interest to Iowa hunger fighters. Attendees participated in workshops highlighting the role of the Iowa National Guard's agribusiness development activities in Kunar Province, Afghanistan; efforts to grow community food systems, food insecurity among Latino immigrant families in Iowa; approaches to navigating cultural differences when setting up feeding and farming programs in Africa; and the role of advocacy in fighting hunger around the world.

The 2011 Iowa Hunger Summit closed with a reception featuring past World Food Prize Laureates.

THE WORLD FOOD PRIZE GLOBAL YOUTH INSTITUTE



The World Food Prize Global Youth Institute began in 1994 as an interactive learning experience for Iowa students, to engage them in real-world science, agricultural and development issues. Over the past 18 years, it has grown immensely, attracting over 1,200 students from 33 U.S. states and territories and 20 countries, and we continue to expand the program. Educators also accompany the students and work with them on essays and research; over 500 teachers have attended the events.

GLOBAL YOUTH INSTITUTE PARTICIPANTS (1994-2011)

UNITED STATES

STATE/TERRITORY	*STUDENTS*	*TEACHERS*
Alabama	1	1
Arkansas	4	4
Arizona	2	2
California	5	5
Colorado	1	1
District of Columbia	12	3
Delaware	5	5
Florida	4	3
Georgia	2	2
Illinois	24	7
Indiana	15	10
Iowa	918	377
Kansas	2	1
Kentucky	1	1
Louisiana	2	1
Massachusetts	1	1
Michigan	1	1
Minnesota	31	17
Missouri	1	1
Nebraska	26	19
New Hampshire	2	3
New Jersey	2	3
New York	14	7
North Carolina	3	3
Ohio	38	25
Oklahoma	1	1
Pennsylvania	10	6
South Dakota	7	3
Tennessee	2	1
Texas	14	10
Virgin Islands	1	1
Virginia	3	2
Wisconsin	8	3
TOTAL	**1163**	**530**

INTERNATIONAL

International students attending the events have come from Afghanistan, Brazil, Bulgaria, Canada, France, Germany, India, Kosovo, Mexico, Montenegro, Netherlands, Nigeria, Peru, Russia, Serbia, South Korea, Tanzania, Turkmenistan, Ukraine and Venezuela.

COUNTRIES	*STUDENTS*	*TEACHERS*
All mentioned above	69	11

GRAND TOTAL*	STUDENTS	TEACHERS
U.S. & International	**1232**	**541**

* Participants who attended multiple times were only counted once

US SECRETARY OF AGRICULTURE, TOM VILSACK speaks to Wallace-Carver Interns in Washington

Wallace-Carver Interns:

Training the next generation of ***leaders for the 21st century***

In Fall 2010, United States Secretary of Agriculture Thomas Vilsack announced the creation of the Wallace-Carver Internship program, an innovative partnership of the World Food Prize Foundation and the United States Department of Agriculture (USDA) to provide college students of exceptional promise the opportunity to collaborate with leading American scientists and policymakers through paid internships at USDA research centers and offices across the United States.

Named for Henry A. Wallace and George Washington Carver, two of the great American leaders in agricultural science and policy who made significant strides toward ending hunger in the 20th Century, the Wallace-Carver Internship program seeks to educate, inspire and train the next generation of agricultural leaders, who will lead us in the 21st Century.

To date, thirty-one Wallace-Carver Interns have been stationed at USDA for eight to twelve week assignments, where they learned first-hand to analyze agricultural and economic policy; assist in the management of food, nutrition and rural development programs; and take part in groundbreaking field and laboratory-based research.

The interns also have the opportunity to participate in the Secretary's Leadership in Agriculture Program (LEAP), a special week-long high-level event in Washington DC for these promising young men and women to meet and interact with the Secretary and Deputy Secretary of Agriculture; meet World Food Prize Laureates and other national and international experts working to end hunger; attend the World Food Prize Laureate Announcement Ceremony at the State Department; explore the Beltsville Agricultural Research Center, the world's largest agricultural research complex; and participate in an exchange of ideas with the senior leadership of the USDA Mission Areas and Agencies.

BORLAUG-RUAN INTERNS at the Global Youth Institute

Borlaug-Ruan Interns:

Dedicated to reducing ***poverty and hunger***

As an extension of the Global Youth Institute, the World Food Prize Borlaug-Ruan International Internship program annually offers high school students the opportunity to work at top research centers around the world for eight weeks during their summer break. The Foundation stresses the uniqueness of this program from other "study abroad" internship programs in that the students participate in research projects with world-renowned researchers while getting a first-hand view of real and pressing food security issues and nutritional problems in poverty-stricken areas. The student becomes an integral part of the project, spending time in the lab as well as days or weeks at a time in the field conducting research and gathering data. The goal of the Borlaug-Ruan International Internship Program is to inspire youth to pursue careers in science, food, agricultural and natural resource disciplines.

The Borlaug-Ruan Internship Program was initiated in 1998 with two intern placements in Mexico and Kenya. In 2011 the Foundation was able to place 18 interns abroad. In the past thirteen years, the World Food Prize has funded a total of 161 Borlaug-Ruan International Internships at 27 of the top agricultural research centers and institutions around the world in Africa, Asia, Latin America and the Middle East, including: Bangladesh, Brazil, China, Costa Rica, Egypt, Ethiopia, India, Indonesia, Malaysia, Mexico, Kenya, Peru, Philippines, Taiwan, Thailand, Trinidad and Turkey.

Borlaug-Ruan interns are involved in global projects dedicated to reducing poverty and hunger in areas as diverse as aquaculture and biotechnology; micro-credit and gender empowerment; education and entomology, and veterinary medicine and plant pathology. The international projects completed by the Borlaug-Ruan Interns are frequently judged by their supervising research faculty and the World Food Prize Laureates to be of significant quality and equal to the work of many of their college and graduate student interns.

Each fall, the top Borlaug-Ruan Interns are selected (from the previous summer) for excellence in completing their assignments and are awarded the John Chrystal and Elaine Szymoniak Intern Awards at the World Food Prize Laureate Award Ceremony at the Iowa State Capitol.

A NEW EXPERIENCE
*The Iowa **Youth Institiute***

On July 20, 2011, a special ceremony was held in Governor Terry Branstad's Office at the Iowa State Capitol to announce that Paul and Claudia Schickler of Des Moines made a generous contribution to the World Food Prize Foundation to expand the foundation's education programs into every high school in Iowa.

The Schicklers' gift and a partnership with Iowa State University allowed for the establishment of the World Food Prize Iowa Youth Institute at Iowa State University. Building upon the 17 year success of the Global Youth Institute, the World Food Prize Iowa Youth Institute is a strong example of a public-private initiative created to increase students' interest in the sciences and global issues.

The Iowa Youth Institute endeavors to expand the reach and depth of the foundation's educational programming in Iowa by involving young scholars from every high school in the state in a day-long series of activities designed to connect students with people and opportunities through which they can apply their interests to solving the critical agricultural and humanitarian challenges facing Iowa and the world.

The first ever World Food Prize Iowa Youth Institute at Iowa State University was held on April 30, 2012. At the tremendously successful inaugural event, a group of 250 students and teachers from around Iowa gathered on Iowa State University's campus to connect with each other and 100 experts – researchers, university faculty, and industry, state and community leaders in Iowa – to discuss and explore the challenges and opportunities society faces concerning global and local food security. The students presented their own research findings and solutions regarding global hunger issues in discussion groups with their peers and experts, and took part in interactive activities and educational sessions on Iowa State's campus designed to raise students' and teachers' awareness of educational and career paths, research and efforts taking place in Iowa contributing to the fight against hunger.

"I had an incredible time at the Institute. It gave me perspective on the issues facing our world and my opportunities to improve them. - Madison Holmes"

Students who participated in the Iowa Youth Institute were recognized for their accomplishment by becoming "Borlaug Scholars", earned scholarships to attend the College of Agriculture and Life Sciences at Iowa State University, and were eligible for selection to attend the Global Youth Institute held in conjunction with the Borlaug Dialogue in Des Moines every October.

At the forefront of Dr. Borlaug's and John Ruan Sr.'s minds when they established the World Food Prize youth programs in 1994 was the fact that today's youth will be faced with meeting the challenge of the ever increasing global demand for food in the future. It is most fitting that in celebrating the 25th Anniversary of the World Food Prize in 2011, the foundation expanded its work with young people, in the legacy of Dr. Borlaug and Iowa's historic role in feeding the world, to inspire the next generation of leaders in the fight against hunger.

25th Anniversary Essays

As a special tribute to Dr. Norman Borlaug, the World Food Prize asked its world-renowned Laureates to submit essays to reflect on the advances in agriculture and food production over the last 25 years and to give their perspective on what challenges we will face in feeding the world over the next 25 years.

The World Food Prize Laureates have a wide variety of backgrounds and experiences and share a broad range of insights and opinions on what they see as the most important accomplishments during their careers and the greatest obstacles in fighting hunger the next generation will face.

Each of the Laureates has a unique approach and this collection of essays is a compendium of their substantive thinking on global agriculture and the food system. From scientific research to information technology, from the environment to increased productivity – their essays explore the transformations of the past and look to the possible transformations of the future.

DR. M.S. SWAMINATHAN

Chairman
M.S. Swaminathan Research Foundation

THE EVER-GREEN REVOLUTION PATHWAY

1987 World Food Prize Laureate

"During the next 25 years, the most important breakthrough we need is environmentally friendly and climate resilient farming techniques, which can increase productivity without adverse ecological side effects."

In my view, information and communication technology is proving to be transformational in all walks of human life, including within agriculture and food security. Remarkable progress in mobile telephony has helped carry the right information to the right people at the right time. Bridging the digital divide has also become a powerful tool for bridging the gender divide and empowering rural women. This updated technology provides them with up-to-date information on the monsoon and the market.

During the next 25 years, the most important breakthrough we need is developing environmentally friendly and climate resilient farming techniques, which can increase productivity without adverse ecological side effects. This is what I have been referring to as the "ever-green revolution". We have to produce more food and agricultural commodities while per-capita arable land and irrigation-water availability diminish due to expanding biotic and abiotic stresses.

To meet this challenge, we will have to harness all the tools of science, including recombinant DNA technology. By blending frontier technologies with traditional wisdom and ecological prudence, we can develop eco-technologies which can help us to achieve sustainable food security through the ever-green revolution pathway.

DR. HANS HERREN

President
Millenium Institute

The Achievements of Modern Agriculture

1995 World Food Prize Laureate

"The global agriculture and food system is definitively broken, and in need of an overhaul...a change of paradigm."

Over the past 25 years and following in the footsteps of the Green Revolution, the major trend in agriculture and food systems has been a constant drive to gain efficiencies and lower prices of key commodities, using an increasing amount of fossil energy to provide inputs such as fertilizers, pesticides and herbicides, as well as for the replacement of human labor. These trends apply mostly to industrialized and newly industrialized countries and has resulted in an increasing use of scarce water resources, soil erosion and loss of fertility, tremendous loss of biodiversity, in particular land races.

With a ratio of 10 Kcal used for every Kcal produced, these trends have also become the number one agent of climate change. This was an obvious blind spot in the drive to prove Malthus wrong. Green Revolution type agriculture has also promoted mono-cropping at the expense of crop and animal genetic diversity, within and across species. This has led to a dual set of problems: significant reduction of environmental resilience in time of greater need, and loss of nutritional value in crops and meat/dairy as well as less food diversity. The rise in diseases such as diabetes is directly related to unsuitable nutrition. While one billion plus people worldwide still go hungry, for lack of access in a world of plenty that produces 4600Kcal/day, or roughly twice the needs, another billion plus are obese.

The global agriculture and food system is definitively broken, and in need of an overhaul, i.e., change of paradigm, as suggested by the multi-stakeholder report "Agriculture at a Crossroads" from the IAASTD. This report looks back 50 years at agricultural knowledge, science and technology and, based on the key findings, provided options for action for a different way forward. It clearly outlines an action plan, which recommends redirecting funding towards research and extension that address small-scale and family farmers' needs and which concentrates on dealing with the root causes of the problems in agricultural and food system sustainability. Although the report lauds the Green Revolution for higher production, it is critical of quick fixes and high input agriculture. It recommends rethinking the old paradigm, and moving towards ecological agriculture, which considers its multi-functionality and the three realms of environment, society and the economy as an integrated framework.

Looking forward: Food production needs to adhere to the basic principle that land should be of constant or improved fertility after each crop cycle, without the use of synthetic fertilizers and other agro-chemicals, all based on non-renewable and finite natural resources. In agriculture, we need to think and act long term, as any transition to a new system takes time -- sustainable agriculture is knowledge intensive. The financial resources are not the main issue, given that to date, approximately 1 billion US dollars are supporting mostly unsustainable (over)production in a few countries, while the rest of the farmers can't get credit for inputs and have little access to education, information and markets.

The policy actions to be undertaken immediately via a redirecting of the perverse subsidies and an increased share of GDP cover four main areas, as presented in UNEP's "Green Economy" report agriculture chapter for new investments:

1) Participatory agroecological research (soil science, agronomy, crop improvement - emphasizing new crops and appropriate mechanization), education and extension, with emphasis on small-scale farmers and especially women and provide access to information, inputs including insurances and credit and markets;
2) Reducing pre- and on-farm post-harvest losses through education, information and access to innovations such as bio-pesticides and storage technologies;
3) Reducing transport and processing losses, by emphasizing more value-adding in rural areas; and
4) Agricultural management practices, i.e., costs for transition to agro-ecological practices, training, and access to small mechanization.

DR. GURDEV SINGH KHUSH

Adjunct Professor
University of California- Davis
Former Head of Plant Breading, International Rice Research Institute

Food Security and Hybrid Rice

1996 World Food Prize Laureate

"In the next twenty-five years, future breakthroughs in food security will come through the application of advances in molecular biology and genomics, which will lead to increased crop productivity."

Rice is the essential food security crop. During the last twenty-five years, the most important breakthroughs for developing countries' food security have been the creation of hybrid rice in China, a new plant type at IRRI, and NERICA rices at WARDA. Now, half of China's rice is a hybrid variety, bringing in yield advantages of 10-15 percent. Most of the rice-growing countries in Asia now have research programs to develop hybrids suitable for their local growing conditions. Outside of China, areas allocated to growing hybrid rice remain limited, but continued research on this technology will result in yields-raising hybrids and increased rice production.

The New Plant type (NPT) developed at IRRI has a yield advantage of 10-15 percent over other high-yielding rice varieties. Several NPT varieties have been released in Philippines, Indonesia and China. Stimulated by IRRI's NPT breeding program, China established a nationwide mega project on the development of super rice. Numerous super rice varieties have been developed by Chinese breeders. NERICA rices have also been adopted in several African countries and paved the way for further improvements in rice yield potential in Africa.

In the next twenty-five years, future breakthroughs in food security will come through the application of advances in molecular biology and genomics, which will lead to increased crop productivity. The focus will be on improving photosynthesis, improvement and regulation of rubisco, introduction of C4-like traits (such as CO2-concentrating mechanisms), and identification of genes/QTLs for efficient mobilization and loading of photosynthates from source to sink. With these implementations in place, crop varieties will become more resilient to changing climate.

DR. SURINDER K. VASAL

Plant Geneticist
International Maize and Wheat Improvement Center (CIMMYT)

EMBRACING BIOTECHNOLOGY

2000 World Food Prize Laureate

"The real impact is realized in the developed and developing world and where self-sufficiency can be attained in food deficit countries."

In the twentieth century, we witnessed a succession of landmark achievements that began with Green Revolutions in North America and Asia and later expanded to revolutions in the livestock and biotechnology sectors. Currently, we are in the midst of another exciting and dramatic gene revolution. With the genomes of some crop species already mapped and knowledge being generated at an accelerated pace, it is hoped that we may realize the dream of Dr. Norman Borlaug to transfer useful traits from one crop species to another.

The benefits from plant breeding research have amounted to billions of U.S. dollars, far exceeding the investments made. The real impact is realized in the developed and developing world and where self-sufficiency can be attained in food deficit countries.

Dwarfing genes, hybrid technology and biotech traits, along with improved cultural practices, made such dramatic gains in food production. In the recent past, two technologies which stand in the forefront are hybrid technology and crop biotechnology. The hybrid technology has been constantly gaining momentum, and hybrid cultivars are now grown in several crops. This has led to increased employment, expanded seed industry growth and spectacular yield gains in maize, sorghum, pearl millet and other crops.

Recently, hybrid rice in China has become a great success story covering 15 million hectares. The biotech revolution is exemplary and perhaps historic covering at least 134 million hectares in 25 countries. The major biotech crops are Maize, Soybean, Canola and Cotton and the traits emphasized are Bt. and herbicide resistance.

Speaking of the next 25 years, the challenges are going to be complex and daunting because of population growth, lingering poverty, an alarming number food insecurities, widespread malnutrition and micro-nutrient deficiency, declining natural resources, increased demand for livestock production and influence of global climate change. Competitive technologies existing or to be developed will be of utmost importance in wheat, rice and corn. Hybrid technology incorporating biotech traits will help resolve problems in all three crops. The pace of progress is expected to be slow in wheat and rice primarily due to seed production problems, but I am confident more resources will be devoted to hybrid research in the future.

Gains are expected to be higher in corn compared to wheat and rice for a number of reasons including higher per unit productivity, enormous genetic diversity, pre-established heterotic groups, huge resource inbred base germplasm, double haploid technology for inbred development, new and diverse inbreds from recurrent selection programs and exploiting strengths and weaknesses of maize reproductive system for seed production and breeding of abiotic stresses. Hybrid development procedure is simple and the breeder can play with bigger numbers. Inbred-hybrid technology encompasses inherent surprises and can provide solutions to multiple problems. Traits are manifested for which the parents and hybrids have never been selected before.

Many developing countries growing corn have the potential of further securing advances in yield by switching over to single crosses, and with the aid of private sector huge investments worldwide, corn genetics and biotechnology will make corn the leading crop in the world.

DR. PER PINSTRUP ANDERSEN

H. E. Babcock Professor of Food, Nutrition and Public Policy
J. Thomas Clark Professor of Entrepreneurship
Cornell University

ASSURING SUSTAINABLE FOOD SUPPLIES

2001 World Food Prize Laureate

Foresight by a small group of individuals in important positions brought about the most successful development initiative the world has ever seen. An international agricultural research effort combined with expanded use of agricultural inputs and facilitating government policies, popularly known as the Green Revolution, turned impending mass starvation in Asia and elsewhere into rapidly increasing agricultural productivity, reduced rural poverty and hunger, and greater purchasing power among consumers.

Recent increases and fluctuations in international food prices have drawn attention to the global food situation. Questions are raised about the ability of the world to feed future generations without doing damage to natural resources. Although the population growth rate is on a decreasing trend, the world population will increase by more than two billion over the next 40 years and by another billion by the time year 2100 comes around. Desires for dietary diversity in low-income developing countries will expand the demand for foods of animal origin. Current estimates are that the demand for food and feed will increase by 70 percent by 2050. About a billion people cannot afford to obtain the food they need to meet energy requirements. Many more suffer from nutrient deficiencies.

There is little doubt that the increase in food demand can be met by an equal increase in supply. The earth's productive capacity is far from fully utilized. Plenty of underutilized productive capacity exists in Brazil, Ukraine, Sub-Saharan Africa and elsewhere, including the United States. The gaps between actual and potential yields are large, and continued public and private investment in productivity-increasing research and technology can elevate food production per unit of land and water almost everywhere. Cutting food waste and losses, which are estimated to be about one-third of the food produced, offers another opportunity to meet future food demand. Investments in rural infrastructure and domestic markets are critically important in many developing countries.

The key question is whether appropriate investments and policies will be made to exploit the capacity to produce the food needed in a sustainable manner. Investments in agricultural research and technology that reduce unit-costs of production, processing and marketing without doing damage to natural resources are particularly important. Such investments need to be made with considerable foresight because of the long time lag between research and the availability of the technology to the farmer. The tremendous future potential of genetically modified (GM) seed is illustrated by the successes to date. Recent estimates found that the use of GM seed reduced the acreage needed to produce the 2009 maize, soybean and cotton crops by about 30 million acres, while reducing insecticide use and increasing farm incomes. It is estimated that the adoption of GM seed increased the incomes of the world's farmers by $65 billion during the period 1996-2009.

Sustainable intensification, i.e., increasing productivity per unit of land and water while maintaining the productivity of natural resources for future generations, is the key to meeting future food demands. Agro-ecological approaches and ecosystem management combined with productivity-increasing technology deserve more attention. Unfortunately, the very narrow definition of organic production methods that exists in the United States and the European Union makes such methods less attractive as a major player in efforts to assure sufficient food for future generations because of relatively low yields, higher costs, risks of soil mining and in some cases higher levels of greenhouse gas emission.

Failure to pursue sustainable management of natural resources and policies to mitigate and adapt to climate change undermines the production foundation for agriculture and makes it increasing difficult to meet future food needs. Smallholder farm families in developing countries, many of whom are at risk of malnutrition, are particularly vulnerable but unsustainable food production is a world-wide problem. Excessive and inappropriate use of water contributes to draw-down of ground-water levels and reduced availability of surface water in an increasing number of locations. Appropriate incentives to farmers to treat water as a scarce resource, such as water pricing or rationing, may increase water use efficiency. Soil degradation is widespread. Wind and water erosion and reduced soil fertility are common in many places. Nutrient mining of soils is a particularly important problem in parts of Africa.

DR. PEDRO SANCHEZ

Director of Tropical Agriculture
The Earth Institute of Columbia University

Reflecting on Food Security in Zaria, Nigeria

2002 World Food Prize Laureate

"The task for the future is to reach the tipping point quickly and eliminate once and for all hunger in Africa."

After talking with farmers at the Millennium Village in Pampaida, northern Nigeria, today became a good moment to reflect on the past 25 years, the present and the next 25 years. In 1986, I was beginning to focus on Sub-Saharan Africa, because it was clearly an area with widespread and persistent hunger, untouched by the Green Revolution.

I led a Rockefeller Foundation study to look at the importance of soil constraints in Africa, and then I was named Director General of ICRAF (the World Agroforestry Center) and started travelling in the 20 countries where we had staff. I became convinced that soil fertility depletion was one of the fundamental biophysical reasons why cereal yields were stuck at one ton per hectare.

During my years at ICRAF, we worked hard to use nitrogen-fixing trees to raise yields, but most importantly we made donor agencies and governments realize the need to invest in soil fertility, together with high yielding varieties, other agronomic practices and, most importantly, enabling policies. After finishing my two terms at ICRAF, I joined the Earth Institute at Columbia University in 2002 to inject agriculture into the group of interventions being designed to achieve the Millennium Development Goals by 2015. The Hunger Task Force of the UN Millennium Project, which I co-chaired with M.S. Swaminathan, recommended to then-UN Secretary General Kofi Annan that he called for a uniquely African Green Revolution, which he did in 2004. (The Hunger Task Force now counts four World Food Prize Laureates in its membership.)

As a result of efforts by many organizations and countries, about 20 million Africans who were malnourished in 2004 are no longer so in 2011. But 20 million is less than ten percent of the hungry in Africa, and the task for the future is to reach the tipping point quickly and eliminate once and for all hunger in Africa. The experience of the Millennium Villages across Africa tells us that hunger elimination must be tackled together with malaria control and other health improvements; water and sanitation, education, and infrastructure in environmentally sustainable ways to be truly effective, involving governments, donors, scientists, the private sector and NGO's. Still, that won't be enough to have a prosperous world with "only" 9 billion people by 2050. To do so, the human fertility rate in poor countries must go down to 2 or 3 children per woman.

A ray of hope was given by an Ethiopian family in the Koraro Millennium Village that my wife, Dr. Cheryl Palm, and I interviewed. We asked a bright, 11-year-old girl finishing primary school what she would like to do and she immediately replied, "I want to be a doctor or a truck driver." We then asked her father what he thought about that, and he said in effect that his daughter will soon will be of marriageable age (12) and several colleagues have begun to make enquiries on behalf of their sons. The father said he expected an important dowry -- maybe a couple of cows -- but now that they produce enough food and have a clinic, he will support his daughter's wishes. That girl will be educated, marry later and have fewer children. That is the bottom line.

DR. MONTY PATRICK JONES

Executive Director
The Forum for Agricultural Research in Africa (FARA)

You Ain't Seen Nothing Yet!

2004 World Food Prize Laureate

"I believe that, properly applied, modern genetic techniques could contribute significantly to increasing food supply and making it more secure."

I was challenged to look back over the past 25 years and describe the most significant breakthrough in global food security shaping our world today. For me, the greatest breakthrough was summed up by Jules Pretty when he said that "everything you know about African agriculture is wrong."

Today, most food aid goes to Africa—but other continents become increasingly hungry each day. By 2050, the world will have to feed 9 billion people, one billion of them in Africa. That is 2 billion people more than the population we already struggle to feed today. To ensure global food security, food production clearly must increase. Producing more food requires land, water and labor, and Africa has the greatest untapped reserves of those resources. It requires the energy of young people, and soon one quarter of all young people on Earth will be African. It requires the ability to raise yields and reduce post-harvest losses, and again, the greatest opportunity to do so lies in Africa. Ultimately, producing more food also requires capital to invest—and where are economies growing faster, with more inward investors seeking opportunities, than in Africa?

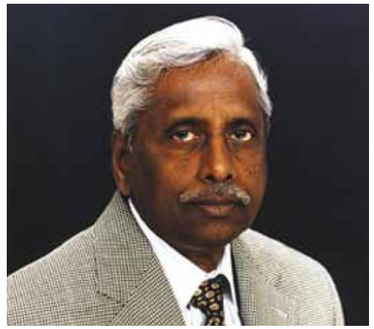
In short: there is no hope of producing the extra food needed to reduce hunger and feed 2 billion more humans unless Africa gets its agricultural act together. It is, therefore, most fortunate that African agriculture is not the basket-case that it was once thought to be. While it is true productivity is still not growing fast enough to overtake the rate of population growth, it has certainly improved over the last decade. So while the per capita food availability has yet to improve, there has been significant improvement in total factor productivity—and that improvement is accelerating.

I hope that will allay the fears of those who might otherwise be distressed at having to depend on Africa to prove Malthus wrong. However, if the pessimists could peer over the horizon, I believe they would agree that we are on the cusp of a new positive age in agriculture.

I believe that, properly applied, modern genetic techniques could contribute significantly to increasing food supply and making it more secure. However, I see even greater emerging opportunities. As an example, farms in Saudi Arabia are producing up to 3 million liters of milk per day from 75,000 cows. Disease management issues make this accomplishment virtually impossible to replicate in a moist environment. Today, however, it can only be achieved in desert locations with fresh water desert aquifers.

But low pressure, and therefore lower cost, desalination plants are entering pilot production and soon a convergence of declining costs for desalinated water and rising food prices may allow coastal deserts such as the Namib to bloom. As such, all the food production and greenhouse gas equations will have to be recalculated. Low cost desalination is only one of the many revolutionary technologies applicable to agriculture that will be rolled out in the near future. Consider also nanotechnology, the use of algae for biofuel, the improved efficiency in capturing sunlight and the ability to generate electricity from infrared radiation which is emitted from any mass that is warmer than its surroundings, including the earth at night. If homes today can run everything—ovens, fridges, lawn mowers and cars—on hydrogen made from tap water and sun light, what are the limits? Man's ingenuity is endless, and reason for optimism is boundless by the same measure.

Perhaps the only thing standing in the way of progress is the stupidity of humans in their dealings with each other. Were it not for war, and the threat of war, we would find that this planet has many opportunities to improve food production, and Africa can lead the way in realizing them.



DR. MODADUGU V. GUPTA

Former Assistant Director General
WorldFish Center

Food Security: Past and Future

2010 World Food Prize Laureate

"Success will depend on political will of nations, implementation of appropriate policies and good governance."

Through three decades of research and development, global food productivity has made great strides, including the increased production of crops (Green Revolution), milk (White Revolution), fish (Blue Revolution), and livestock. For example, fish production has increased from about 85 million tons in 1985 to 142 million tons by 2008. This growth was in spite of the fact that nearly two thirds of wild stocks have been either over-exploited or fully exploited and catches from the wild fisheries have stagnated. Demand for fish increased at twice population growth, as fish is the cheapest animal protein for the poor in developing countries. Increased fish production was made possible due to larger dependence on aquaculture, otherwise known as fish farming.

Aquaculture grew from less than one million tons in 1950 to over 52 million tons today, as a result of investments made in research for domestication of species for farming, better fish health management, etc. Without this research, the result would be: (1) more malnourished populations in developing countries where fish is the main source of animal protein consumed by the low-income households; and (2) exploitation, or even possible decimation, of wild stock. If this had occurred, revival would have been nearly impossible for the foreseeable future. Similarly, crop production has increased tremendously through development and implementation of Green Revolution technologies.

While food production breakthroughs have successfully saved millions of people from starvation and death, nearly a billion people still go to bed hungry. This is not only due to shortages in food production, but also due to poverty coming in the way of these people accessing food when available, and diversion of grains for biofuel. It is estimated that global food production has to increase by nearly 70 percent to meet the demand of growing population by 2050. In addition, global warming and its impacts on food production continue to be major concerns.

It is estimated that fish production has to increase by nearly 30 million tons by 2030 to meet the growing demand from increasing population, growing wealth and urbanisation. As most wild fish stocks have been over-exploited, there is little chance of increasing production from wild or capture fisheries. Therefore, this production increase must come from farming of fish in fresh and marine waters. Due to declining land and water resources, the increased production has to primarily come from sustainable usage of existing resources. While increased fish production is easily achievable, the true challenge for food security will be to increase grain production through sustainable practices – water and land management, and a balance in the use of grains for food, biofuel and animal feeds. Success will depend on political will of nations, implementation of appropriate policies and good governance.

DR. PHILIP NELSON

Scholle Chair Professor in Food Processing
at the Department of Food Science
Purdue University

Food Losses in the 21st Century

2007 World Food Prize Laureate

"The dilemma of food losses continues to hold our attention as an unrealized opportunity."

In 1974, I attended a conference on reducing food losses that was held in New Delhi, India. At that time, it was reported that between 20 and 40 percent of food produced in India was lost due to spoilage, contamination, improper storage or other causes before it reached the consumer. A call for action was made to reduce these food losses to help alleviate hunger.

But today, 37 years later, little improvement has been made as food losses are still reported at the same level—sometimes higher—throughout parts of India and Africa. Food losses represent a tremendous waste of resources including water, land, energy, labor and capital; but needlessly and unfortunately, little attention has been paid at the national or international levels to this part of the food chain. The dilemma of food losses continues to hold our attention as an unrealized opportunity.

A report issued earlier this year, sponsored by the Food and Agriculture Organization of the United Nations, stated that "tension between production and access to food can also be reduced by tapping into the potential to reduce food losses". The report continued, "Given that many small holders live on the margins of food insecurity, a reduction in food losses could have an immediate and significant impact on their livelihoods."

It is critical in 2011 to focus on reducing food losses and expanding markets for local food crops, to help reduce hunger and poverty and to stimulate rural economic growth. Making food loss reduction a mainstream component of research and development programs is essential to improve food security and enhance livelihoods for populations in developing countries. Scientific and technological innovations in areas of food preservation, storage, distribution and market development will help reduce hunger, create demand for commodities and contribute to food loss reduction.

The recently initiated International Food Technology Center (IFTC) at Purdue University has begun an action plan to reduce on-farm losses and develop the capacity for small- to medium-scale entrepreneurs and women's groups to provide markets for farmers. Efforts to develop and provide training opportunities to researchers, extension personnel, entrepreneurs, student exchanges and others through short-term training on improved food processing and preservation, food safety, health and nutrition and technology developments will provide sustainable solutions to the problems of food losses and market development. Food Scientists' efforts, through the IFTC at Purdue University and other partner organizations, look to reduce food losses as a key component to reduce hunger and poverty and to stimulate economic growth.

REV. DAVID BECKMANN

President
Bread for the World

Building the Political Will to End Hunger

2010 World Food Prize Laureate

"The most powerful way to foster continued progress against hunger is to build stronger political commitment at both the global and country levels."

The proportion of the world's people who are hungry has gone down substantially over the last 25 years. This remains true despite high grain prices and the resulting surge in hunger over the last few years. And the world has made even more dramatic progress against poverty and disease than hunger over the last 25 years. The number of people in extreme poverty is roughly half of what it was 25 years ago.

I recently visited northwest Bangladesh, where I lived and worked in the 1970s. Going back to the same towns and villages was profoundly encouraging. I met up with people who were friends back then. They are still very poor, but not nearly as poor as they were. Today's children are visibly better nourished, and there is a better variety of foods in the markets. Women are less confined and more confident than I remember.

We have learned a lot from the successes of the last 25 years about how to reduce hunger, and we know from experience that further progress is possible. But the political will to overcome hunger remains weak. It would clearly make sense to invest more in poor-country agriculture, and programs focused on babies and pregnant mothers could quickly and inexpensively reduce child malnutrition. But resources go to higher political priorities – military spending, for example – and to groups of people who have more political power than hungry families have.

The most powerful way to foster continued progress against hunger is to build stronger political commitment at both the global and country levels. Political leadership is important, and the 2011 World Food Prize laureates – President Lula of Brazil and President Kufuor of Ghana – are models of the leadership we need.

But political commitment can also be built up over time by developing institutions that push for help and opportunities for hungry and poor people. These can be advocacy organizations, farmer associations, research institutions, corporations that have an interest in progress against poverty, institutions within governments, or political parties. Bread for the World organizes people of faith across the United States to urge our Congress and President to do their part to end hunger in our own country and worldwide, and we have been able to win important changes. In 2011, we worked with others to support and shape growing U.S. support for agricultural development and nutrition programs in low-income countries. We also pushed to get the U.S. government to launch reforms to make its development assistance more effective. Bread for the World also helped to strengthen tax credits and child nutrition programs that have helped to keep U.S. hunger from increasing despite high unemployment.

In early 2012, the U.S. House of Representatives voted for deep cuts in all U.S. programs that are focused on hungry and poor people. International assistance is especially vulnerable. So Bread for the World is now campaigning to form a Circle of Protection around funding for hungry and poor people. This is an example of what it will take – in every nation, year after year – to build the political will to achieve the progress against hunger that is now so clearly possible.

JO LUCK

Former President and CEO
Heifer International

Empowering Stakeholders to Effect Change

2010 World Food Prize Laureate

"We must shift our focus from what we can achieve individually...and instead focus on what we can achieve together."

The single most significant breakthrough in global food security during the past 25 years is the recognition of the critical value of empowering women, as well as men, to excel as individuals and groups to make choices that transform into action, and those actions to desired outcomes Closing my eyes, I think back on the last 25 years.

While visiting a Maasai community in eastern Africa, I queried the Chief about how much time he spent caring for the cattle—feeding, hauling water, milking, cleaning pens and assisting with birth of the offspring. He responded by saying that the women were responsible for those tasks. I immediately suggested that, as such, it would be beneficial for these women to attend the agriculture training workshops we were providing. Quickly, I learned that their tribal culture did not permit women to attend, and I assured him of my respect for his leadership and local "rules." Casually, however, I mentioned the success I had witnessed in other villages where the women attended training meetings. I described the data that indicated milk production was greater and the offspring were healthier, among other improvements. And, now that we were talking economics and dollars and cents, the Chief reconsidered.

On another occasion, this time visiting agricultural projects in rural Zimbabwe, I asked to meet with the women of the community and soon found myself sitting on the ground in a circle with ten young women. Most of the women had been forced to marry at a very young age and were either pregnant or holding an infant. During our discussions I asked them about their dreams, hopes, and goals. With puzzled expressions they explained they didn't realize they could have dreams—no one had ever asked them such a question. With eyes open, today I see progress. In the Maasai community, where the Chief and I shared an in-depth discussion about the potential benefits of training animals' care-givers in agricultural management, the women are now successful farmers working in partnership with their husbands. Many have become leaders in the community and educated a new generation of trainers in neighboring villages.

A young woman from the "dream circle" in Zimbabwe, who eighteen years earlier sat beside me and wrote her dreams on a scrap of paper, later became a co-worker at Heifer International and is a dear friend to this day. In spite of having three children by the time she was sixteen and caring for her abusive husband until he died, Dr. Tererai Trent achieved her goals when she earned her Bachelor's, Master's and Doctorate degrees in agriculture. Besides being highly regarded in her field, Dr. Trent was also named by Oprah Winfrey as her favorite and most inspirational guest from the entire 25-year run of her television show. Ms. Winfrey provided a $1.5 million grant for Dr. Trent to build a school in her home village that will allow the girls to receive an education along with the boys, thus fulfilling Dr. Trent's final dream.

More than 80 percent of the small-resource farmers in sub-Sahara Africa and South Asia are women. They, along with their male counterparts, will play a key role in feeding the growing population of our planet in the next several decades.

Looking to the future, one where the sexes will continue to work together, we must encourage collaboration among other groups. We must shift our focus from what we can achieve individually as farmers, policy makers, companies, NGOs, governments, researchers and other institutions, and instead focus on what we can achieve together. How can we sustainably use our natural resources, financial, human and intellectual capital to provide and properly feed for a population predicted to reach 9 billion people by 2050?

Transparent dialogue and firsthand learning experiences across a broad spectrum of perspectives is necessary. I applaud many groups currently providing a safe venue and objective facilitation for these critical discussions. The greater challenge, however, is how to reduce polarization of issues and expand understanding of and respect for differing approaches to and opinions on agricultural and food system issues

A recent comment by Neilson C. Conklin, President of Farm Foundation, summed up very well what is needed: "Rather than confrontation, we need civil, nonpartisan deliberations on the opportunities and challenges before us. And we need to begin now." Each and every one of us has an equally important role to play to ensure food security in the future-- IF YOU EAT YOU ARE A STAKEHOLDER! Without the united effort of all stakeholders, food security cannot be achieved.

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